REMARKS

Claims 1-114 are in the application.

Claims 35-65 are elected for prosecution. The remaining claims have been withdrawn from consideration, resulting from a restriction requirement which has been made final.

Claims 35, 40, 47, 55, 58 and 60 are amended.

Claim 60 is amended to provide proper antecedent basis, and it is respectfully submitted that the claim scope is unchanged.

Claims 35, 40, 47, 55, and 58 are amended to recite that the user profile or consumer profile is user-specific and persistent. This language distinguishes aggregate or population usage profiles, not representative of the particular user or users, and those stored temporarily and not separately retained for later use with respect to the user or users. While these amendments do apparently effect the scope of the claims, it is respectfully submitted that the present claims remain corresponding to the counts of interference, and therefore that the request for interference remains pending.

Prior arguments made by applicants in favor of patentability over Yourick, deemed unpersuasive by the Examiner, are hereby withdrawn.

REQUEST FOR RECONSIDERATION OF RESTRICTION REQUIREMENT

Applicants again request reconsideration of the withdrawal from consideration of claims 1-34 and 66-114, since these claims are copied and issues of potential interference are to be determined expeditiously by the Office, without unnecessary administratively imposed delay. The language of MPEP 2303.01 is apparently mandatory in its statement that the question of interference takes precedence over election of invention--it is applicants expressed intent to claim the subject matter which is dispositive, and applicants herein have expressed such intent.

MPEP 2303.01 states:

2303.01 Interference on Nonelected Subject Matter

Where the subject matter found to be allowable in one application is disclosed and claimed in another application, but the claims therein to such subject matter are either nonelected or subject to election, the question of interference should be considered. The requirement of 37 CFR 1.601(i) that the conflicting applications shall contain claims for the same patentable invention should be interpreted as meaning generally that the conflicting claimed subject matter is sufficiently supported in each application and is patentable to each applicant over the prior art. The statutory requirement of first inventorship should be given primary emphasis and every effort should be made to avoid prematurely issuing a patent where there is an adverse claimant.

Following are illustrative situations where the examiner should take action toward instituting interference:

(A) Application filed with claims to divisible inventions I and II. Before action requiring restriction is made, examiner discovers another application having claims to invention I. The situation is not altered by the fact that a requirement for restriction had actually been made but had not been replied to. Nor is the situation materially different if an election of noninterfering subject matter had been made without traverse but no action given on the merits of the elected invention.

(B) Application filed with claims to divisible inventions I and II and in reply to a requirement for restriction, applicant traverses the same and elects invention I. Examiner gives an action on the merits of I. Examiner subsequently finds an application to another containing allowed claims to invention II and which is ready for issue. The situation is not altered by the fact that the election is made without traverse and the nonelected claims possibly canceled.

(C) Application filed with generic claims and claimed species a, b, c, d, and e. Generic claims rejected and election of a single species required. Applicant elects species a, but continues to urge allowability of generic claims. Examiner finds another application claiming species b which is ready for issue. An interference may be proposed even though the generic claims in the first application are not allowable.

(D) Application filed with generic claims and claims to five species and other species disclosed but not specifically claimed. Examiner finds another application the disclosure and claims of which are restricted to one of the unclaimed species and have been found allowable. The prosecution of generic claims is taken as indication of an intention to cover all species disclosed which come under the generic claim.

In all the above situations, the applicant has shown an intention to claim the subject matter which is actually being claimed in another application. These are to be distinguished from situations where a distinct invention is claimed in one application but merely disclosed in another application without evidence of an intent to claim the same. The question of interference should not be considered in the latter instance. However, if the application disclosing but not claiming the invention is senior, and the junior application is ready for issue, the matter should be discussed with the TC Director to determine the action to be taken.

FORMAL REJECTIONS

INDEFINITENESS

Claim 60 is rejected under 35 U.S.C. § 112, second paragraph as being allegedly indefinite for failing to provide antecedent basis for claim terms. Without acceding to the propriety of the rejection, and without waiver of rights, applicants have amended claim 60 to provide a traditional introduction for newly-discussed claim terms.

POSSESSION OF INVENTION

Claims 35-65 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants incorporate herein by reference their previous response with respect to support for the claims in the application as filed. Rather, applicants believe it would be helpful to focus herein on the invention as recited in the independent claims and how a single example within the application fully supports this claim language. Of course, applicants believe that the dependent claims are fully supported as well, and reference to prior submissions is offered in support thereof.

While other support is provided in other portions of the application, it is believed that Example 2 of the application provides cogent support for the present claims within a single context:

EXAMPLE 2

The "smart screen" aspect of the present invention is further explored in the present example. This aspect of the invention allows the interface to anticipate or predict the intent of the user, to provide, as a default, the most likely action to be taken by the user of the programmable device as a default, which may be either accepted or rejected by the user, without delay to the user. The intelligent selection feature may also automatically choose an option and execute the selected option, without further intervention.

When a user regularly applies the VCR device, for example, to record a given television show which appears weekly on a given television channel, at a given time, on a given channel, such an action could be immediately presented to the user as a first option, without forcing him to explicitly program the entire sequence.

Further, if an entire television programming guide for a week or month is available as a database, the interface could actively determine whether the desired show is preempted, a repeat, changed in time or programming slot, etc. Thus, the interface could present information to the user, of which he might not be aware, and predict an action based on that information. Such a device could, if set in a mode of operation that allows such, automatically execute a sequence of instructions based on a predicted course of action. Thus, if a user is to be absent for a period, he could set the machine to automatically record a show, even if the recording parameters are not known at the time. Of course, this depends on the availability of an on-line database of current broadcast schedules, but this may generally be available, and the on-line database system is of known type and need not be described in detail herein.

The smart screens may be implemented as follows. The controller may be, for example, a Macintosh ci computer, operating under Macintosh 7.0 operating system. The Hypercard 2.0 software may be used to implement the screen interface, which incorporates the above-described features, which is generally compatible with the Hyperpad software described above. HyperCard is mentioned due to its capabilities to reference external programs, thus allowing interfacing to various software and hardware devices. A more global scripting language, such as Frontier by UserLand Software Inc., may also be used, especially where low level hardware control of interfaced devices, such as a VCR, multimedia adapter, or the like is desired. Other scripting languages include versions of REXX, by IBM, available on many platforms. The input device is an Apple ADB mouse, and the output display is an 8 bit or 24 bit graphics color adapter connected to, e.g., a 14" color monitor. In addition, various parameters concerning the use of the interface are stored in the computer's memory, and to a non-volatile mass storage device, such as a hard disk drive, or EEPROM or EPROM, as well as battery backed RAM could also be used.

From the stored information regarding the prior use of the interface by the user, including prior sessions and the immediate session, and a current state of the machine, a predicted course of action or operation may be realized. This predicted operation is, in the context of the current user interface state, the most probable next action to be taken by the user.

The predicted operation is based on: the identity of the user, if more than one user operates the interface and machine, the information already entered into the interface during the present programming session, the presently available choices for data entry, settings for the use of the machine, which may be present as a result of a "setup" operation, settings saved during a prior session, and a database of programming choices. In the case of a HyperCard script, the interface software calls another program which has access to the necessary data in the memory, as well as access to any remote database which may be necessary for the function. Using a predictive technology, such as Boolean logic, fuzzy logic, neural network logic, or other type of artificial intelligence, a most probable choice may be presented to the user for his approval, or another choice may be selected. Further, a number of most probable choices may be presented simultaneously or in sequence, in order to improve the probability that the user will be immediately or quickly presented with an acceptable choice. If multiple choices are presented, and there is limited room on the display, two (or more) similar choices may be merged into a single menu selection, which may be resolved in a secondary menu screen.

Figure 24 shows a system for correlating a user's preferences with a prospective or real-time occurrence of an event. The input device 2401, which is a remote control with a pointing device, such as a trackball, provides the user's input to the control 2402. The program is stored in a program memory 2403,

after it is entered. The control 2402 controls a plant 2404, which is a VCR. The control also controls an on-screen programming interface 2405, through which the user interactively enters the program information. Each program entry of the user is submitted to the user history database and preferences module 2406, which may also receive explicit preference information, input by the user through the input device 2401. The prospective and real time event characterization unit 2407 uses any and all information available in order to determine the character of a signal input, which is a video signal, from the signal receiver 2408. A signal analyzer 2409 provides a preliminary analysis and characterization of the signal, which is input to the prospective and real time event characterization unit 2407. The prospective and real time event characterization unit 2407 also interacts and receives an input from a telecommunication module 2410, which in turn interacts and receives information from an on-line database 2411. A user preference and event correlator 2412 produces an output relating to a relatedness of an event or prospective event and a user preference. In the event of a high correlation or relatedness, the control 2402 determines that the event or prospective event is a likely or most likely predicted action. The prospective event discussed above refers to a scheduled event, which is likely to occur in the future. The characterization unit also has a local database 2413 for storing schedule information and the like.

The following is an example of a user wishing to program the machine interface of a VCR to record, e.g., "Married With Children" (Fox, Sunday, 9:00 p.m.), every time it occurs. The interface would first perform a self diagnostic to determine whether the machine is set up and operating correctly. This would include a determination of whether the clock has been set and thereafter operating continuously. Of course, the clock could have, in practice, a battery to minimize this problem. The interface would then, if the clock is not properly set, and if there is no telecommunication or other external means for determining the exact time, present the user with a menu selection to set the proper time. If the user does not have the exact time, the step may be deferred. If the machine has access to an external source of the exact time, it would then access this source. This could include a telephone connection to a voice line which repeats the time. The computer would then perform a speech recognition algorithm which would be used to determine the time. Such a speech recognition algorithm could also be used as a part of the user interface. Alternatively, a modem could be used to obtain the time in digitally coded form, which would alleviate the need for speech recognition capabilities for this function. An on-line connection could also be used in order to obtain information concerning television scheduling. A further alternative would be to access a video signal which contains time information. For example, many cable broadcasting systems have a channel which continuously broadcasts the time. The interface could tune to this channel, acquire a representation of the screen image, and perform a character recognition algorithm to determine the time. This character recognition algorithm could also be used to decipher information regarding programming schedules, which may appear on certain cable broadcast channels. Thus, the interface determines a need for setting of the clock, and then takes measures to fulfill the necessary function, through any and all available resources, which may include speech recognition, character recognition, digital telecommunication means, radio wave reception and interpretation, and links to other devices.

The system next must determine what function the user wishes to perform. In this regard, if more than one user has access to the system, the user identifies himself to the interface, in a user identification step 1701 or an analogous action, which may be a coded entry, or a selection from the menu. If the interface has voice recognition capability, then the user may be recognized by his voice pattern, or merely by stating his name. The interface then accesses the memory for a profile of the past use of the machine by the user, which may include the entire prior history, relevant abstracts of the history, or derived user preferences, as shown in the personalized startup based on user profile step 1702, which information is also stored and used in the past user history determining element 2107. These choices differ in the amount of storage necessary in order to retain the desired information.

Thus, if the user has only used the VCR to record, e.g., the NBC 11 o'clock news, i.e., record all days from 11:00 p.m. to 11:30 p.m. on NBC, in the past, the most likely current predicted choice would be the NBC 11 o'clock news. If the interface were to present a number of choices, having lower probability, then it would interpret the recording history to be "news" based on a database of broadcast information. Therefore, a prediction of lower probability would be ABC or CBS news at, e.g., 11:00 p.m., and the NBC

news at, e.g., 5:00 p.m. Thus, these three choices would be initially presented to the user, along with a menu selection to reject these predicted choices. In this case, the user would select the "reject" selection, and would be presented with a next predicted desired menu choice. Since the user history, in this case, does not provide for another choice of high probability, the user would be prompted to explicitly choose the program sequence by day, time, channel, and duration. The user would then enter the starting time for recording according to the methods described above. The interface would then search its databases regarding the user and broadcast listings to present a most likely choice, as well as all available alternatives. In this case, the user history is of little help, and is not used to predict. In other cases, the system would use its intelligence to "fill in the blanks", which could, of course, be rejected by the user. The most likely choices would then be those programs that begin at the selected time. If the user had input the channel, instead of starting time, then the presented choices would be the broadcast schedule of the channel, e.g. Fox, for the selected day. The user then selects one of the available choices, which would complete the programming sequence. If no database of broadcasts is available, then the user must then explicitly define all parameters of the broadcast. When the programming is completed, the interface must then update its user database, prompt the user to set the VCR to record, by, e.g., inserting a blank or recordable tape.

The user would then proceed to explicitly program the VCR interface to record "Married with Children" on Fox at 9:00 p.m. on Sunday evening. If a database is available, it might also show that "Married with Children" is also syndicated in re-runs, and therefore may be available on other channels at other times. Thus, during the subsequent session, both the premier showing and re-run of "Married With Children" would be available predicted choices, along with the 11 o'clock News on NBC.

Having demonstrated a preference for "Married with Children", the interface would then characterize the program. This would include, for example, a characterization of the soundtrack, the background, foreground, actors and actresses present, credits, etc. The interface would then attempt to correlate the features present in the reference selection with other available selections. This comparison may be with a preformed database, providing immediate results, or prospectively, after entry of the reference selection. Of course, a number of correlation functions may proceed simultaneously, and various choices may be merged to form a compound reference selection. Further, as various "episodes" of the reference selection occur, the system appends and integrates the most recent occurrence with the stored reference information.

Returning to the programming process, if the user instead wishes to record weather reports on all channels, the interface may be of further help. The interface may control a plurality of tuner elements 2502 of a video signal reception device 2501, so that a plurality of broadcasts may be simultaneously received. Using the mass storage and possibly image data compression described above, a plurality of broadcasts may also be recorded simultaneously in the intermediate storage 2503. The mass storage may be multiple VCRs, optical storage, or magnetic storage, including disk and tape. The optical recording tape produced by ICI, Inc. might also be a useful storage medium for large volumes of data, as might be generated by recording multiple video signals. In this case, the interface 2506 would access its associated database 2413 to determine, at a given time, which channels have "news". The interface could also randomly or systematically monitor broadcasts for "special reports". The interface would then monitor these channels for indicia of a "weather" broadcast. For example, the newscaster who appears to report the weather on a given show is usually the same, so that a pattern recognition system 2505 of the video frame could indicate the presence of that newscaster. In addition, the satellite photographs, weather radar, computer generated weather forecast screens, etc. are often similar for each broadcast. Finally, news segments, such as "weather" often appear at the same relative time in the broadcast. Using this information, the interface could begin recording at a beginning of a news segment, such as "weather", stop recording during commercials, and continue recording after return from break, on all selected channels. It is noted that the system of the present invention is intelligent, and may therefore "learn" either explicitly, or through training. Therefore, if the system made an error during the process, the user would define the error to the system, e.g., a substitute newscaster or rearrangement of news segments, so that the system is less likely to make the same error again. Thus, while such a system is inherently complicated, it poses significant advantages for an user. Further, while the system is complicated, the interface provides simplicity, with inductive

reasoning and deductive reasoning.

It is noted that various algorithms and formulae for pattern recognition, correlation, data compression, transforms, etc., are known to those skilled in the art, and are available in compendiums, such as Netravali, Arun N., and Haskell, Barry G., "Digital Pictures Representation and Compression", Plenum Press, New York (1988); Baxes, Gregory A., "Digital Signal Processing, A Practical Primer", Prentice-Hall, Englewood Cliffs, N.J. (1984); Gonzalez, Rafael C., "Digital Image Processing", Addison-Wesley, Reading, MA (1987), and, of a more general nature, Press, William H. et al, "Numerical Recipes in C The Art of Scientific Computing", Cambridge University Press, 1988, which are both incorporated herein by reference.

A further example of the use of the advanced intelligent features of the present invention would be if the user wished to record, e.g., "live" musical performances. These occur on many "talk" shows, such as "Tonight Show with Johnny Carson" (NBC, 11:30 p.m. to 12:30 p.m., weeknights), "Saturday Night Live" (NBC 11:30 p.m. to 1:00 a.m. Saturday-Sunday), and other shows such as the "Grammy Awards". The interface, if requested to record such performances would seek to determine their occurrence, by, e.g., analyzing a broadcast schedule, by, e.g., interacting with the on-line database 2411, and the local database 2413. When the interface determines with high probability that a broadcast will occur, it then monitors the channel(s) at the indicated time(s), through the plurality of tuners 2502. In the case of pay-per-view systems and the like, which incorporate encrypted signals, an encryption/decryption unit 2509 is provided. This unit also allows encryption of material. During the monitoring, the interface system acquires the audio and video information being broadcast, through the signal receiver 2408, and correlates this information with a known profile of a "live musical performance", in the preference and event correlator 2412. This must be distinguished from music as a part of, e.g., a soundtrack, as well as "musicals" which are part of movies and recorded operas, if these are not desired. Further, music videos may also be undesirable. When the correlation is high between the broadcast and a reference profile of a "live musical performance", the system selects the broadcast for retention. In this case, the information in the intermediate storage 2503 is transferred to the plant 2507, which includes a permanent storage device 2508. The intermediate storage 2503 medium is used to record a "buffer" segment, so that none of the broadcast is lost while the system determines the nature of the broadcast. This, of course, allows an extended period for the determination of the type of broadcast, so that, while real-time recognition is preferred, it is not absolutely necessary in order to gain the advantages of the present invention.

Thus, while it is preferable to make a determination in real time, it is possible to make an ex post facto determination of the nature of the broadcast program. By using an available delay, e.g., about 5 to about 300 seconds, or longer, the reliability of the determination can be greatly increased as compared to an analysis of a few frames of video data, e.g., about 15 to about 300 mS. As stated above, the determination storage need not be uncompressed nor lossless, so long as features necessary to determine the character of the broadcast are present. However, it is preferred that for broadcast recording, the storage be as accurate as possible, so that if a compression algorithm is implemented, it be as lossless as possible. The MPEG II standard would be applicable in this situation. In a preferred situation, approximately 5 minutes of broadcast material is analyzed in order to make a determination of the content. This material is stored in two media. First, it is stored by normal means on video tape. Second, it is received in parallel by the computer control, where the data is subject to a number of recognition and characterization processes. These are performed in parallel and in series, to form an extracted feature storage matrix.

A preferred method incorporates one or more digital signal processor based coprocessor elements, which may be present on, e.g., Nubus cards in the Macintosh ci or other computer type. These elements may be based on C-Cube CL-550 (JPEG compression), AT&T DSP32C, AT&T DSP3210, AMD 29000 series, Motorola DSP 96000ADS, Texas Instruments TMS 32050, etc, or a combination of types. A typical board containing a DSP is the MacDSP3210 by Spectral Innovations Inc., containing an AT&T digital signal processor and an MC68020 CISC processor, and uses Apple Real-time Operating System Executive (A/ROSE) and Visible Cache Operating System (VCOS) (Not prior art). It is preferred to have processors employed be optimized for image processing, because of their higher throughput in the present applications, to process the video signals, and more general purpose signal processors to analyze the audio signals, because of the greater availability of software to analyze audio signals on these processors, as well as their

particular strengths in this area. An array processor which may be interfaced with a Macintosh is the Superserver-C available from Pacific Parallel Research Inc. (parallel Inmos Transputers) (Not prior art). Such an array processor may be suitable for parallel analysis of the image segment and classification of its attributes. Pattern recognition, especially after preprocessing of the data signal by digital signal processors and image compression engines, may also be assisted by logical inference engines, such as FUTURE (Fuzzy Information Processing Turbo Engine) by The laboratory for International Fuzzy Engineering (LIFE), which incorporates multiple Fuzzy Set Processors (FSP), which are single-instruction, multiple data path (SIMD) processors (Not prior art). Using a fuzzy logic paradigm, the processing system may provide a best fit output to a set of inputs more efficiently than standard computational techniques, and since the presently desired result requires a "best guess", the present interface is an appropriate application of this technology. As noted above, these processors may also serve other functions such as voice recognition for the interface, or extracting text from video transmissions and interpreting it. It is also noted that, while these coprocessing engines are now costly, the present emergence of high levels of integration of functionality on semiconductor chips, as well as the development of optical computers will dramatically reduce the cost of implementing this aspect of the present invention; however, the present state of the art allows the basic functions to be performed. The above identified

It is noted that various methods are available for determining a relatedness of two sets of data, such as an image or a representation of an image. These include the Hausdorff distance, fuzzy correlation, arithmetic correlation, mean square error, neural network "energy" minimization, covariance, cross correlation, and other known methods, which may be applied to the raw data or after a transformation process, such as an Affine transformation, a Fourier transformation, a warping transformation, a color map transformation, and the like. Further, it is emphasized that, in image or pattern recognition systems, there is no need that the entire image be correlated or even analyzed, nor that any correlation be based on the entirety of that image analyzed. Further, it is advantageous to allow redundancy, so that it is not necessary to have unique designations for the various aspects of the data to be recognized, nor the patterns to be identified as matching the uncharacterized input data.

The MSHELL from Applied Coherent Technology is a software system that runs on a Mercury MC3200 array processor, in conjunction with a Data Translation DT2861 or DT2862. The NDS1000 Development System from Nestor, Inc., provides image recognition software which runs on a PC compatible computer and a Data Translation DT2878. The above mentioned processing hardware and software, as known, is incorporated herein.

The C-Cube CL550 is fully disclosed in "C-Cube CL550 JPEG Image Compression Processor", Preliminary Data Book, August 1991, and addendum dated November 20, 1991, incorporated herein by reference, and products incorporating the CL550 include the JPEG Video Development Kit (ISA bus card with Chips and Technologies PC video 82C9001A Video Window Controller), and the C-Cube CL550 Development Board/PC for ISA Bus (CL550, for use with Truevision TARGA-16 or ATVista cards) or for NuBus (Macintosh). The so-called C-Cube "CL950" (unofficially announced) is a MPEG decoder device. Such a device as the CL950 may be particularly useful for use in the present VCR for reproducing compressed program material, which may be compressed by the present apparatus, or may be used for decompressing pre-compressed program material.

It is noted that all functions of a VCR would also be simplified by the use of such powerful processors, and thus it is not only these advanced functions which are facilitated by the processors. It is also noted that these image recognition functions need not necessarily all be executed local to the user, and may in fact be centralized. This would be advantageous for two reasons: first, the user need not have an entire system of hardware in the VCR, and second, many of the operations which must be performed are common to a number of users, so that there is a net efficiency to be gained.

The amendments herein made to the independent claims describe the user profile as persistent. This is supported in the discussion of storage of user profiles in non-volatile memory media, and the discussion of how the profile is developed over time based on a series of separate transactions. The independent claims are also amended to describe that the profile is user-specific, and therefore not a mere aggregate. This is supported in the discussion of generation of individual user profiles and the separate storage of profiles for various users.

With respect to claim 35, the application clearly discusses a video recorder system which employs an operating system and/or index to allow access to a plurality of recorded programs. (See also Example 4). Thus, the application describes at least one embodiment for storing and accessing a plurality of records, as provided in the first two elements of the claim. It is also clear that the system generates and employs a user profile, as required by the third element.

As a user accesses or views media, a history of use is generated and stored. This history of use provides a basis for an adaptive system to infer media preferences of the user. Thus, a computation system defines the user profile based on the content records accessed, and predicts an affinity of the user for new content records based on the prior user profile. This prediction is a type of correlation, or simply a relation, between the content records and the user profile. Thus, the recommender subsystem meets the fourth claim element.

The video recorder system also includes a video display system, for presenting the recommended or "related" content records to the user (a "viewer"), and thus support for the fifth claim element is established.

The user is given the opportunity to evaluate the recommendations, and provide feedback to the recommender. The user input thus meets the sixth claim element.

Finally, as disclosed in the application, the user profile is updated based on the received feedback, as required by the seventh claim element.

The application provides significant detail as to the nature of the hardware and software employed (e.g., a Macintosh ci, possible coprocessor and I/O board(s)). Thus, for the present claim, a personal computer with keyboard and mouse, as well as video storage and retrieval subsystem, and appropriate software to control the system as functionally described, clearly corresponds to the stated elements. Such a computer is indeed described in the application. Thus, applicants respectfully submit that claim 35 is fully supported by the application, and applicants have demonstrated possession of the claimed invention at the time of the application.

With respect to claim 40, as discussed above, the system employs a mass storage system, for example a magnetic disk or tape, which includes an index for storing a plurality or content records. A user profile is stored as well. The system supports display of content records as well.

While the system supports an autonomous mode of operation, a user interface allows a user to input a specific request for "content records", e.g., video programs. In so doing, the user activity is stored as a history of use, and the explicitly selected content employed to build a user profile. In order to "understand" the user activity, the system process or "relates" the content with the stored profile. This relating step allows expansion and adaptation of the profile based on the access to the content records. Thus, claim 40 is also shown to be fully supported by the specification.

With respect to claim 47, and 55, as discussed above, the user profile may be automatically generated by the system. It is based on the available data from operation of the system, and thus clearly represents a history of access to the objects, e.g., media content. This profile is stored in a memory.

The user profile may, for example, be represented as a set of weights of a neural network, or as a set of rules. It should be clear that the size of the user profile generally is less than the amount of raw data contained in the set of objects, e.g., video programs, represented. Thus, the profile is indeed a "summary". The profile clearly is designed to extract the user's interest in the media, particularly for the purpose of predicting an interest in future media. Thus, all essential elements of claims 47 and 55 are clearly contained in the specification filed in 1991.

With respect to claim 58, a user profile is defined and stored, as discussed above. The specification discusses pay-per-view technologies, and the use of profiles to predict which premium media might be of interest to the user for purchase. Thus, the user is, at least in this case, a "consumer".

As discussed above, a history of access to data objects is maintained, and a system is disclosed for monitoring such access and storing the history. Using express or implied feedback, the customer profile is updated. As discussed above, it is clear that this profile represents the customer's preferences. Thus, it is shown that claim 58 is supported by the specification.

Applicants therefore respectfully request reconsideration and withdrawal of the rejections of the claims under 35 U.S.C. § 112.

ART REJECTIONS

The independent claims subject to examination are rejected as being anticipated by Yourick. Yourick provides a self-contained system for recommending objects within its database based on a set of characteristics of the objects, as correlated to the inferred characteristics of an average user, modified by session-specific choices made by the particular user. The system thus analyzes user-specific behavior only during the course of a session, and retains this information in the form of an aggregate profile for use during interaction with other users. The system thus stores usage data representing a composite of all users, but does not persistently store data representing but a single user. This is a critical distinction, in that no teaching or suggestion of Yourick would allow it to operate in the present environment: by only storing an aggregate profile, the system does not allow prediction of individual differences. A user-specific profile, on the other hand, is capable of representing the individuality of the user.

Yourick states: "The first level of inductive learning is used to make determination as to the type of shopper who is most likely to be using the system at the present time based on the customer attributes of the items selected by previous users during corresponding time periods." In fact, application of this determination to the present claims results in a contradiction—if the specific user has previously selected an item, that same user is unlikely to select it again, since the past selection would indicate either a past purchase of the selected item, and thus a satisfaction of the need, or a past resistance to purchase of the selected item, and thus a lack of preference for the selected item. This first level determination is therefore only applicable to predicting the profile of naïve users, who by definition are not previously profiled.

With respect to the second level of inductive learning, Yourick states: "The second level of inductive learning attempts to identify item characteristics which are interesting to a specific

consumer....Data is kept only for the user session, so each user creates his or her own set of important or preferred characteristics." Clearly, such a strategy is inappropriate for a personalized (as opposed to demographically tuned) recommender system, and Yourick does not anticipate the present invention. In fact, even with this second level of inductive learning, no teaching or suggestion is made as to how, the system might deal with a second encounter by the same user, especially since a subsequent set of selections would likely, at some level, be inconsistent with the prior set.

Respectfully submitted,

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